Department of the Navy SBIR/STTR Transition Program

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NAVSEA #17-530

Topic # N111-054
Cloud-Based Real-time Data Dissemination and Scalable Storage for Track Management
Real-Time Innovations

WHO

SYSCOM: NAVSEA

Sponsoring Program: Program Executive Integrated Warfare Systems Combat Systems (PEO IWS)

Transition Target: AN/SPY-6 Air and Missile Defense Radar (AMDR)

TPOC:
(812)854-4804

Other transition opportunities: All current RTI Connext Data Distribution Service (DDS) users, including hundreds of Department of Defense (DoD) customers, are potential users. There are over 1000 projects using RTI Connext DDS worldwide.

Notes: RTI Scenario Editor Product Screenshot
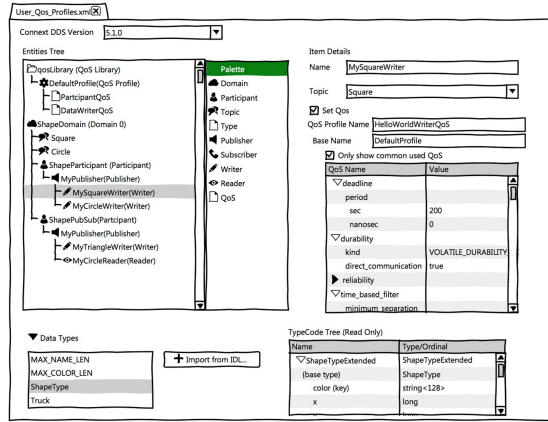
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WHAT

Operational Need and Improvement: Navy distributed software systems are often loosely coupled. Different components are developed at different times and by different teams. Emulated components are necessary to test interfaces not yet available in final implementation. The US Navy needs the ability to rapidly create realistic scenarios in DDS-based command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) and combat management systems to simulate and test functionality. This is currently a manual process. RTI Scenario Editor automates this process.

Specifications Required: The Navy requires an expedient and generic approach to emulating software system components on the Data Distribution Service (DDS) communications bus for AN/SPY-6 AMDR. Efficient, flexible, and test-driven message traffic emulation allows for early integration of multiple software components, thus ensuring interoperability and performance while reducing AMDR program cost and risk. The Navy requires integration and testing of multiple and interrelated software components, each with varying development timelines, maturity and availability. RTI System Designer and RTI Scenario Editor provides this message traffic emulation in-place of the missing software components.

Technology Developed: The RTI Scenario Editor software product was partially developed through this SBIR. RTI Scenario Editor product is currently an advanced prototype.

Warfighter Value: The AN/SPY-6 AMDR Prime Contractor asserts a potential for $9 million in non-recurring engineering (NRE) cost avoidance because of this technology and its companion product, the RTI System Designer. Another non-Navy DoD user asserted that the two products would save man-months of development, integration and test time.

Full system test will be possible by executing emulated scenarios for components under development Automation and regression tests to ensure the correctness of the system under development, and to support rapid development and faster final integration of system components.

WHEN

Contract Number: N00024-14-C-4037   **Ending on:** November 2, 2017

Milestone	Risk Level	Measure of Success	Ending TRL	Date
RTI Prototyper - predecessor technology to RTI Scenario Editor	N/A	Product Released	7	December 2015
Scenario file format specification to support 100s of time and data triggered scenarios, instance, and activity function definitions.	N/A	Demonstrated	7	July 2016
Scheduler to execute scenarios with 10 ms accuracy.	N/A	Demonstrated	7	December 2016
Dynamic scripting language (Lua) to support the data types defined in Object Management Group (OMG) DDS XTypes specification.	N/A	Demonstrated	7	April 2017
Scenario Editor GUI to define and edit the scenario file format.	Low	Demonstrated	6	June 2018

HOW

Projected Business Model: RTI will fold the results of this SBIR effort into its standard RTI Connext DDS product offering. RTI has successfully used this business model several times in the past to transition SBIR developed technology. As a result, RTI has an industry leading 100% percentile DoD Commercialization Achievement Index (CAI).

Company Objectives: RTI seeks additional organizations to evaluate RTI Scenario Editor and provide feedback.

Potential Commercial Applications: Nearly all RTI Connext DDS commercial customers can benefit from RTI Scenario Editor. RTI customers span diverse Internet of Things (IoT) markets, including healthcare and medical devices, energy, mining, air traffic control, trading, automotive, unmanned systems, supervisory control and data acquisition (SCADA), ground stations, and big data science.

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